Clinical Section

The Role of Roentgenology in Acute Intestinal Obstruction

R. A. MacPherson, M.D., C.M.
Associate Radiologist, Winnipeg General Hospital.
Demonstrator in Medicine, University of Manitoba.

The early diagnosis and management of acute intestinal obstruction is often a difficult problem. The interest in this subject has been revived during the past few years because of newer methods of diagnosis and treatment, and a refinement of the older methods. The purpose of this communication is to discuss, principally, the rôle of roentgenology in both diagnosis and treatment.

During the period from January, 1940 to December, 1941, there were sixty-three cases of acute intestinal obstruction in the Winnipeg General Hospital. These include both small and large bowel, and although the number is small, it is a fairly representative cross-section of this condition.

In Table I is a summary of the obstructing factors in this series.

Cause of Obstruction	63 Cases
1. Adhesions, bands, volvuli of small bowel	25
2. Hernia, Inguinal 2, Ventral 2, Femoral 1	5
3. Gall Stones	2
4. Carcinoma and carcinomatosis	10
5. Congenital mal-rotation of bowel	2
6. Paralytic ileus	8
7. Volvolus: Sigmoid 1, Caecum 1	2
8. Intussuception	1
9. Not determined	8

The age of these patients varied from two to eighty-one, the largest number being between forty and sixty. As might be expected, almost half of the cases were due to adhesions, bands, etc., with a variety of predisposing factors—chronic salpingitis in two; chronic gall bladder in one; and old laporotomy scars, causing bands and adhesions in several more. Nevertheless, in the majority, no such reasons for the bands or adhesions could be found. Seven cases of carcinoma of the colon caused acute obstruction. These were obviously neglected cases, as carcinoma of the colon, generally speaking, rarely reaches this stage before relief is sought.

In the undetermined group, conservative treatment relieved the obstruction and consequently the etiology was not ascertained.

Diagnosis:

Acute intestinal obstruction is a clinical emergency. The quickest and simplest methods of obtaining all the pertinent finding is obviously indicated. Yet an accurate diagnosis often requires all the available clinical-roentgenological aids. By a careful correlation of all the findings, a reasonably accurate diagnosis can usually be made. In determining the degree, site and etiology of the obstruction, the roentgenological examination is particularly helpful.

1. Acute Small Bowel Obstruction.

The presence of intestinal colic is the earliest sign of obstruction. True, food indiscretions and occasionally spastic contractions of the bowel may mimic organic obstruction and an early diagnosis may be difficult or even impossible. In suspected small bowel obstruction what roentgenological methods are used to assist in the diagnosis and how do we interpret the findings?

Plain films, preferably in more than one position are made; an anterior-posterior film in the supine position, and one with the patient upright. Or if too ill, as is often the case, it may be made with the patient lying on the side, the rays projected horizontally through the abdomen. The upright film must be carefully done as the slightest movement or breathing will obscure any fluid levels and defeat its main purpose. When viewing the films we now attempt to answer the following questions:

1. Is obstruction present?
2. Can we locate the site of the obstruction?
3. Can we determine the likely etiology of the obstruction?

Is obstruction present? We look for distended loops of small bowel and for fluid levels on the film made in the upright position. The presence of these is a definite indication of obstruction.

Swenson and Hibbard[1] showed by experiments on dogs that gas appears about three hours, and fluid levels six hours after complete obstruction, the interval being slightly longer in obstruction of the lower ileum.

The gas and fluid levels can usually be demonstrated before abdominal distention becomes apparent.

At this point we have to appreciate several factors which may confuse the findings. In infants and children gas is normally found in the small intestines. In adults visualization of gas in the small bowel is abnormal—except for a small amount in the duodenum and terminal ileum, and is an indication of stasis. This stasis occurs, often to a marked degree in urinary irritation, in elderly patients after a period in bed; in severe abdominal pain of other origins; and following abdominal operations. Although

the recognition of this type of stasis is necessary it should not be confused with organic obstruction. In obstruction the loops of bowel are distended beyond the normal limits; that is, greater than three centimeters in cross diameter when measured on a routine film.

The fear of giving barium in suspected small bowel obstruction is often expressed. The opaque material remains fluid in the dilated loops and does not dry and cake as in the distal half of the large bowel. In our experience we have not seen any untoward effects caused by barium in small bowel obstruction—on the contrary we have seen a partial large bowel obstruction aggravated by barium. The more recent writers on this subject (Golden: Abbott: Johnson) [2 5] express similar views. However, the use of a barium meal is rarely necessary to assist in making a diagnosis, if the plain films are carefully made and properly interpreted.

Having decided that obstruction is present, can we determine the site? A close study of the distended bowel may be all that is necessary to settle this point. It must be remembered that the high jejunum and low ileum have an entirely different mucosal pattern, with the middle third shading from one to the other. The gas filled jejunum can be picked out readily by its cross striations. The ileum on the other hand has a smooth outline. The recognition of these different segments assists materially in locating the approximate site. The position of the fluid levels on the upright film will be additional help. Fluid levels in the small bowel tend to arrange around the central portion of the abdomen, high in jejunal obstruction and lower in ileal. At this point it should be stated that occasionally in colonic obstruction, where an incompetent ileo-caecal valve is present, the ileum may take part in the distention. Both gas distended ileal loops and fluid levels can be demonstrated. In such cases the clinical features are those of large bowel obstruction and a barium enema should settle any doubts. We have one such case in our series, where a neoplasm in the ascending colon just above the ileo-caecal junction, caused distended loops of ileum. A dilatation of both large and small bowel with fluid levels is indicative of a generalized paralytic ileus. Both these conditions must be kept in mind when trying to ascertain the site of obstruction.

Assuming obstruction is present, the approximate site known, can we now determine the etiology? This is the most difficult question of the three to answer. A simple ileus caused by an inflammatory lesion and associated peritoneal irritation can often be recognized by a careful correlation of all the evidence.

Until the work of Abbott[3], Lofstrom[4], and others, it was, as a rule, only at operation that the true nature of the obstruction became known. Soon after the introduction of the Miller-Abbott tube for the treatment of intestinal obstruction, Abbott and Johnson[3] began the study of the small bowel in the region of the obstruction, using the following technique. After the Miller-Abbott tube entered the small bowel its progress was carefully watched. When the tube stopped, it was deflated and a small amount of thin barium sulphate solution injected under fluoroscopic control. In this manner a careful study of the mucosal pattern frequently revealed the nature of the obstruction.

This method is an interesting field for the investigation of suitable cases and with experience, should be of added assistance. One of the chief difficulties seems to be getting the tube into the duodenum and on its way. This is particularly true in cases with considerable distention. Recently we have manipulated the tube under the fluoroscope with success and would recommend this procedure in difficult cases.

It is thus apparent that the roentgenological examination is of the greatest value: first, in making or confirming the diagnosis of obstruction: secondly, in locating the site: lastly, the etiology of the obstruction, in many instances, can be determined by the newer methods mentioned.

2. Acute Large Bowel Obstruction.

The presence and approximate location of acute colonic obstruction is, as a rule, best determined roentgenologically, by taking plain films in different positions. The procedure is essentially the same as that for small bowel obstruction.

In acute large bowel obstruction requiring immediate therapy, the distention proximal to the obstruction is practically always a prominent feature, and in addition, fluid levels can be demonstrated.

Again there are several features relative to interpretation that one must keep in mind. Gas alone in the colon in varying amounts is a normal finding. There are some distinct differences however, between gas in the normal, and gas in the distended colon. When the colon is distended, the width is beyond the usual limits and the haustrations are far apart or completely absent. One condition, more common in the aged; namely, the large atonic colon or sometimes wrongly called a megacolon, is frequently confusing. The clinical picture is not one of acute obstruction, and there is an apparent distention of the entire colon. This may be further complicated by the presence of fluid levels if one or more cleansing enemas are given and improperly evacuated. At this point we would like to enter a plea against the use of repeated cleansing enemas in suspected obstruction. This procedure frequently complicates the roentgenological picture. Air and fluid may pass the obstruction and result in misleading findings. This has occurred in several instances in our experience, and one hesitates to give an opinion at all when enemas have been given. If acute obstruction is suspected an

x-ray examination must be done first, to obtain the clearest understanding of the presence and site of the obstruction.

Rare cases of ileus confined to the colon alone do occur. We recently had the opportunity of observing such a case. A woman with a greatly distended large bowel and fluid levels was wrongly diagnosed as low, colonic obstruction. The subsequent surgical operation revealed a peritonitis following a pelvic infection.

The ever present possibility of perforation in acute obstruction of the colon must be kept in mind. If perforation is suspected, we must look for free air in the abdomen. This manifests itself by a layer of gas between the liver and diaphragm on the upright film, or between the lateral margin of the liver and abdominal wall if a film is made lying on the side. Perforation would also be suspected if an ileus of the small bowel is present.

In most cases plain films are all that are necessary to establish a diagnosis of obstruction. The etiology can often be determined only by the administration of an opaque enema. In many acute cases this may be of little value for two reasons. One, the patient is frequently too ill to retain any of the enema, and secondly, because of an over-distention and overlapping of the loops, an accurate interpretation is impossible. A careful correlation of all the findings is again of the utmost importance in drawing satisfactory conclusions.

Treatment

1. Acute Small Bowel Obstruction:

Any decision regarding the treatment will depend primarily on the site and etiology of the obstruction. A simple ileus such as that caused by peritoneal irritation from an inflammatory lesion, would indicate conservative measures. On the other hand, a primary strangulation calls for immediate surgical intervention.

An early diagnosis of acute obstruction with little distention of the gut calls for conservative treatment. It is unquestionable that intestinal intubation with the Miller-Abbott tube has been a great advance in the satisfactory treatment of simple mechanical obstruction. Films made of the abdomen at intervals will determine the adequacy of the decompression. When we are dealing with a rapidly increasing distention, and certainly where decompression fails to give relief in twenty-four to thirty-six hours, then surgery must be considered. (Wangensteen[5].)

Treatment of Large Bowel Obstruction:

In acute obstruction of the large bowel, suction will not give any appreciable relief. The increasing dangers of perforation, as time goes on, is against conservative treatment. Once the diagnosis of acute obstruction of the colon is made, prompt surgical intervention is indicated.

A summary of the treatment in our series is seen in Tables II and III.

Table II.

Surgical Treatment: 44 Cases.

Contributory causes of death. Died: 12	
1. Repeated intestinal haemorrhage	1
2. Pneumonia	1
3. Bowel fistula and pelvic cellulitis	1
4. Carcinoma of the colon	3
5. Carcinomatosis	1
6. Carcinoma of the pancreas	1
7. Obstruction alone	4

Of the forty-four cases treated surgically the mortality was twelve, or a rate of 27.2%. In six cases the contributing causes played such a prominent part in the final outcome that death could hardly be attributed to obstruction alone. In two cases of carcinoma of the colon perforation occurred. We thus have six cases where obstruction was the principal agent, giving a mortality of 15.6%. This compares favorably with all the published figures.

Table III.

Treatment: Suction—Duodenal or Miller-Abbott Tube.

No. of cases: 19. Deaths: 3

Causes of death: Peritonitis and ileus: 3

From Table III we get a mortality rate of 15.2%. The three deaths being due to peritonitis, this figure hardly indicates the value of this form of treatment in lowering the mortality rate. Undeniably, the published figures, on the mortality of cases treated by intubation are lower than those of all other forms of treatment.

Cases

Case 1—Male, Age 36. Three weeks before admission had a cholecystectomy and appendectomy. Twelve hours before admission developed abdominal cramp, diarrhea. Temperature, normal; pulse, rapid; no vomiting.

Roentgen examination: Supine position (Fig. 1). Slight amount of gas in small bowel—no dilated loops. Upright position (Fig. 2). Multiple fluid levels small bowel.

Diagnosis: Small bowel obstruction.

Operation: Loops of distended small bowel followed distally to an inflamed Meckel's diverticulum around a constricted loop of ileum. Bowel freed and diverticulum removed. Recovery uneventful.

Comment: This case illustrated the value of films made in more than one position. The supine film was essentially negative yet a diagnosis of small bowel obstruction was made on the demonstration of fluid levels in the upright film.

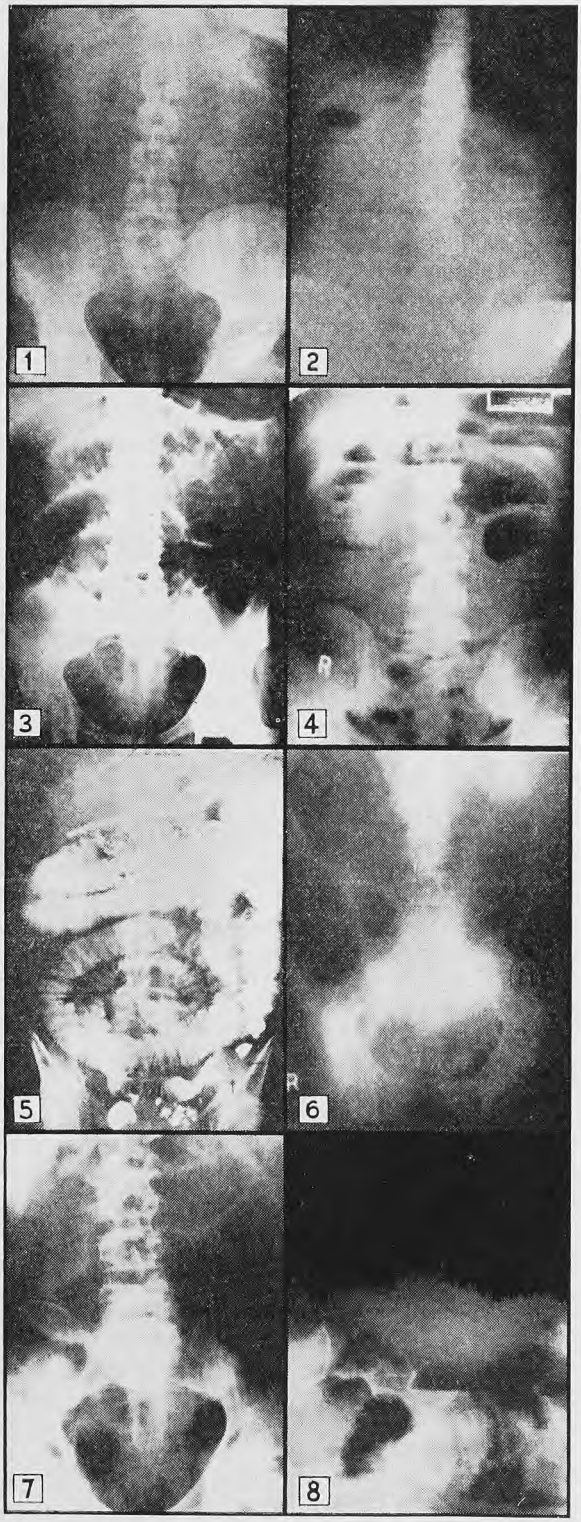
Case 2. Male, Age 56. History of abdominal cramps, vomiting, two days.

Roentgen examination: Distended loops of small bowel (Fig. 3.) and fluid levels (Fig. 4). Obstruction middle third of small bowel.

Operation: Small bowel greatly distended—obstructed by a dense band in mid-portion of bowel.

Comment: The demonstration of distended small bowel and fluid levels was diagnostic. The site was determined by the appearance of the gas filled loops.

Case 3. Male, Age 81. Three days before admission began vomiting; pain in right upper quadrant, dull aching in character. Admitted to hospital December 14. Some distention and a firm mass felt in right upper quadrant.



Differential diagnosis: 1. Ca. of stomach. 2. Bowel obstruction. 3. Atonic constipation. On December 18 — distention gone, intermittent small bowel obstruction suspected. December 20—symptoms recurred. Investigation with a barium meal requested.

Roentgen examination: Stomach and duodenum negative. Five hours (Fig 5), the small bowel is dilated down to a ring density in ileum which is most likely a gall stone.

Operation: December 22: Large gall stone removed about six feet from ileocaecal junction—Small bowel dilated—Patient went continually down hill and died January 29th.

Case 4. Male, Age 57. Admitted to hospital August 6th. Complaining of recurring pain in left lower quadrant. Operation in July for volvulus of sigmoid. Physical examination essentially negative.

Roentgen examination: August 8—Flat plate of abdomen, negative. August 13—Barium enema, negative. Redundant sigmoid loop. On August 16—Again complained of acute abdominal pain—abdomen became distended—patient greatly shocked. Roentgen examination: Flat plate (Fig. 6) Marked distention of large bowel with acute obstruction in sigmoid region.

Operation: Volvulus of sigmoid with tremendous dilatation. Lumen of bowel purple and necrotic looking. Died shortly after operation.

Case 5, Male, Age 29. Admission diagnosis — Ca. of colon at recto-sigmoid junction. While being prepared for operation developed acute obstruction—distention and vomiting.

Roentgen examination: Dilatation of large bowel (Fig. 7) with fluid levels (Fig. 8)—low obstruction.

Operation: Large bowel dilated—resection of recto-sigmoid carcinoma. Patient discharged one month later.

Summary

1. The etiology, treatment, and mortality rate of sixty-three cases of acute intestinal obstruction is outlined.

2. The role of roentgenology in the diagnosis and treatment of acute intestinal obstruction is discussed. Plain films of the abdomen in more than one position will usually give all the necessary information as to the presence and site of obstruction. The etiology may be determined by the methods of Abbott and Lofstrom. A barium enema is necessary to determine the etiology of large bowel obstruction in most cases.

3. The efficiency of continuous suction can best be determined by repeated films of the abdomen.

REFERENCES:

1.—Swenson, P. C. & Hibbard, J.S. Roentgenographic Manifestation of Intestinal Obstruction. Arch Surgery **25**: 578 Sept. 1932.

2.—Golden, R. & Leigh: Swenson. Roentgen-Ray Examination with the Miller-Abbott Tube. Radiology **35**: 521 Nov. 1940.

3.—Abbott, W. O. & Johnston, C. G. Intubation Studies of the Human Small Intestines. Surg. Gynec. & Obs. **66**: April 1938.

4.—Lofstrom, James E. & Noer, R. J. The Use of Intestinal Intubation in the Localization of Lesions of the Gastro Intestinal Tract. Am. Jour. Roent. & Rad. **42**: 321 Sept. 1939.

5.—Wangensteen. Acute Intestinal Obstruction. Rad. **35**: 680 December 1940.

Editorials and Association Notes

Manitoba Medical Review

ESTABLISHED 1921

WINNIPEG, MARCH, 1942

Published Monthly by the

MANITOBA MEDICAL ASSOCIATION

Canadian Medical Association, Manitoba Division

Editorial Office

102 MEDICAL ARTS BUILDING, WINNIPEG

Editor

F. G. ALLISON, B.A., M.D. (Man.), M.R.C.P. (Lond.)

Editorial Committee

F. G. ALLISON, B.A., M.D. (Man.), M.R.C.P. (Lond.)

R. B. MITCHELL, B.A., M.D., C.M. (Man.), F.R.C.P. (C.)

J. D. ADAMSON, B.A., M.D. (Man.), M.R.C.P. (Edin.), F.R.C.P. (C.)

J. GORDON WHITLEY, *Business Manager*

Editorial or other opinion expressed in this Review is not necessarily sanctioned by the Manitoba Medical Association

Abstract

MATERNAL PULMONARY EMBOLISM BY AMNIOTIC FLUID AS A CAUSE OF OBSTETRIC SHOCK AND UNEXPECTED DEATHS IN OBSTETRICS.

Steiner, P.E. and C.C. Lushbough; Jour. Amer. Med. Ass'n 1941 **117**, 1245 and 1340.

On a basis of a study in the Department of Pathology, University of Chicago, of 8 women, together with experiments on animals, the authors recognize a new obstetric disease which has its distinctive symptomatology, aetiology, and pathology. The series is composed of cases which had previously been called obstetric shock, idiopathic postpartum uterine atony with haemorrhage, acute pulmonary oedema of pregnancy and other obscure diseases, for all of which a causation had not previously been known.

Clinically the disease is characterized by shock coming on during labour or soon after its conclusion.

Predisposing factors are uterine tetany or exceptionally strong uterine contractions, meconium in the anniotic fluid, intra-uterine death of the foetus, an over-size baby, multiparity and advancing age of the mother.

The essential pathologic condition is found on microscopic examination of the lungs. It consists of wide-spread embolism of small pulmonary arteries, arterioles and capillaries by the particulate matter found in amniotic fluid and meconium.

The disease was duplicated clinically and pathologically in rabbits and dogs by the intravenous injections of human amniotic fluid and meconium.

The incidence of fatal cases was 0.2 per cent in general autopsies, and 1:8000 confinements. The incidence of sublethal cases is unknown, but these cases probably outnumber the fatalities. It was the commonest cause of obstetric death during labour or in the first ten hours of puerperium.

The diagnosis during life should become possible in the future. —R.B.M.

Income Tax Returns

As a matter of guidance to the medical profession and to bring about a greater uniformity in the data to be furnished to the Income Tax Division of the Department of National Revenue in the annual Income Tax Returns to be filed, on or before March 31, the following matters are set out:—

Income

1. There should be maintained by the Doctor an accurate record of income received, both as fees from his profession and by way of investment income. The record should be clear and capable of being readily checked against the return filed. It may be maintained on cards or in books kept for the purposes.

Expenses

2. Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

(a) Medical, surgical and like supplies;

(b) Office help, nurse, maid and book-keeper; laundry and malpractice insurance premiums. (It is to be noted that the Income War Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount if paid, is to be added back to the income);

(c) Telephone expenses;

(d) Assistants' fees;
The names and addresses of the assistants to whom fees are paid should be furnished. This information is to be given each year on or before the last day of February on Income Tax Form known as Form T.4, obtainable from the Inspector of Income Tax. (Do not confuse with individual return of income, Form T. 1, to be filed on or before 31st March in each year);

(e) Rentals paid;
The name and address of the owner (Preferably) or agent of the rented premises should be furnished—see (j);

(f) Postage and stationery;

(g) Depreciation on medical equipment;
The following rates will be allowed provided the total depreciation already charged off has not already extinguished the asset value:

Instruments — Instruments costing $50 or under may be taken as an expense and charged off in the year of purchase; Instruments costing over $50 are not to be charged off as an expense in the year of purchase but are to be capitalized and charged off rateably over the estimated life of the instrument at depreciation rates of 15 per cent to 25 per cent, as may be determined between the practitioner and the Division according to the character of the instrument, but whatever rate is determined upon will be consistently adhered to;

Library—The cost of new books will be allowed as a charge.
Office furniture and fixtures—10 per cent per annum.

(h) Depreciation on motor cars on cost;

Twenty per cent 1st year;
Twenty per cent 2nd year;
Twenty per cent 3rd year;
Twenty per cent 4th year;
Twenty per cent 5th year;

For 1940 and subsequent years the maximum cost of motor car on which depreciation will be allowed is $1800.

The allowance is restricted to the car used in professional practice and does not apply to cars for personal use.

(i) Automobile Expense; (one car)
This account will include cost of licence, oil, gasoline, grease, insurance, washing, garage charges and repairs. (Alternative to (h) and (i) for 1940 and subsequent years.) In lieu of all the foregoing expenses including depreciation there may be allowed a charge of 4½c. a mile for mileage covered in the performance of professional duties. Where the car is not used solely for the purpose of earning income the maximum mileage which will be admitted as pertaining to the earning of income will be 75% of total mileage for the year under consideration.
For 1940 and subsequent years where a chauffeur is employed partly for business purposes, and partly for private purposes, only such proportion of the remuneration of the chauffeur shall be allowed as pertains to the earning of income.

(j) Proportional expenses of doctors practising from their residence—

(a) owned by the doctor;

(b) rented by the doctor.

(a) Where a doctor practises from a house which he owns and as well resides in, a proportionate allowance of house expenses will be given for the study, laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, depreciation and interest on mortgage (name and address of mortgagee to be stated);

(b) Rented premises— The rent only will be apportioned inasmuch as the owner of the premises takes care of all other expenses.

The above allowances will not exceed one-third of the total house expenses or rental unless it can be shown that a greater allowance should be made for professional purposes.

(k) Sundry expenses (not otherwise classified)—

The expenses charged to this account shall be capable of analysis and supported by records.

Claims for donations paid to charitable organizations will be allowed up to 10 per cent of the net income and for patriotic donations up to 50% of the net income both upon submission of receipts to the Inspector of Income Tax.

The annual dues paid to governing bodies under which authority to practice is issued and membership association fees not exceeding $100 to be recorded on the return, will be admitted as a charge.

The cost of attending post-graduate courses or medical conventions will not be allowed.

(l) Carrying charges;

The charges for interest paid on money borrowed against securities pledged as collateral security may only be charged against the income from investments and not against professional income.

(m) Business tax will be allowed as an expense but Dominion, Provincial or Municipal income tax will not be allowed.

Professional Men Under Salary Contract

3. The salary of professional men will be taxed in full without any deductions other than those specified in the Income War Tax Act such as charitable and patriotic donations and payments to superannuation or pension funds. In particular, the cost of operating an automobile, includ-

ing depreciation thereon, and the annual fees paid to governing bodies will not be allowed. A large number of complaints have been received by the Association to the effect that this regulation is not fair to the salaried Doctor who is obliged to keep a motor car and incur other expenses incidental to the performance of his duties. The Commissioner stated that it was not the desire of the Government to collect taxes on expense money and that the remedy lay in salaried doctors having their contracts changed to provide for:—

(a) salary for services rendered; and
(b) allowance for legitimate expenses incurred in providing that service.

To illustrate, let us take the case of a salaried doctor who requires the use of a motor car in discharging his duties. It may be presumed that, in setting the salary of the Doctor, due recognition was given to the fact that it was necessary for him to provide and operate a car; but, if the whole amount paid to him be declared as salary, then it is all taxable; whereas if the cost of operating the motor car is looked upon as an expense item and paid for as such, it is not salary, and, therefore, is not taxable.

It is recommended that each salaried doctor concerned have his case reviewed by his employer in order that the expenses to which he is entitled may be deducted from his total income and paid to him as expenses, leaving the remainder of his income to be paid to him as salary for services rendered, upon which latter amount he will be taxed.

—From the Ontario Medical Association Bulletin, Nov. 1941.

Obituaries

Dr. N. Chasanoff

Dr. N. Chasanoff, Smeaton, Sask., died in the Winnipeg General Hospital on February 9th after a lingering illness.

Born in Selkirk, Man., twenty-five years ago, he was educated there and in Manitoba University. He graduated in Medicine in 1940, and after serving a year as senior interne in the Children's Hospital, Winnipeg, he practised at Smeaton. He is survived by his parents, his widow, a brother, F.O. Jay Chasanoff, R.C.A.F., and a sister.

Many of the practitioners in Winnipeg will recall him as an interne in the General Hospital and the Children's Hospital. Keenly interested in sports, he had a fund of high spirits which made him a general favorite. He was a hard worker, and his untimely death cut short a life that held great promise.

Dr. George W. Knipe

Many Winnipeg practitioners will remember Dr. George W. Knipe, who died on February 6 at his residence in Vancouver. He was born in Ireland sixty-six years ago, graduated in Medicine from Dublin University and took postgraduate work in Liverpool. In 1910 he came with his family to Winnipeg to live in the Deer Lodge district. In addition to his medical duties, he was greatly interested in public health and religious education. He was a deacon of Westminster Church and a member of the Dickens Fellowship. In 1934 he removed to Vancouver. His Irish charm and his sterling character won him many staunch friends here.

He is survived by his widow, two daughters, Nora Knipe of Saanich, B.C., Mrs. Arthur Dobson, wife of a missionary in India, and a son, Corp. Roger B. Knipe, attached to the dental corps of the R.C.A.F.; also two sisters, in England.

Canadian Medical Association Seventy-Third Annual Meeting

Jasper Park Calling

During the week of June 15th, 1942, the Canadian Medical Association will take over the beautiful Jasper Park Lodge for its seventy-third annual meeting. Those who have been to Jasper will realize how excellently the Lodge lends itself to a convention such as ours, and will wish to be present. Those who go for the first time have a great treat in store for them. The Lodge, built on the cabin system, nestled on the shore of a beautiful lake and surrounded by majestic mountains, is unsurpassed in appointments, scenic beauty and comfort. There is splendid accommodation for 650 people. In every direction, by motor car, saddle pony or on foot delightful excursions may be made.

For those who play golf, Jasper offers the golfers' paradise. There is no finer course in the world.

For several months past, committees have been at work on this meeting, planning for its every detail. A scientific programme of a high order has been arranged for Wednesday, Thursday and Friday, June 17th, 18th and 19th, particulars of which will appear in subsequent issues of the Journal. The two preceding days, June 15th and 16th, will be given over to business meetings of the General Council of the Association. Also, on Tuesday, June 16th, the British Columbia Division and Alberta Division of the Association will hold their annual meetings.

For combined scientific profit, healthful recreation and pleasure, this meeting will stand out as an attraction long to be remembered.

Some one asks, "Should medical conventions be held in war time?" The answer is decidedly "Yes." The progress of scientific medicine and the dissemination of medical knowledge are if anything more needed in war time than in peace time. Furthermore, Doctors must have occasions to relax if they are to continue to do their best work during those hectic days of war. So the combination of learning and playing at Jasper Park in June, 1942, offers to every Canadian Doctor and his family an opportunity which, if at all possible, should not be missed. Money

spent at the Canadian National Jasper Lodge reaches the Government finances and helps pay for the war.

What Will It Cost?

We are glad to announce that most attractive railway and hotel rates have been arranged. $84.45 includes first class railway fare from Winnipeg to Jasper and return, standard lower berth, and four days' room and board at Jasper Park Lodge.

Rates exclusive of accommodation and meals at Jasper Park Lodge are arrived at by subtracting $24.00 from the figure quoted.

Hotel reservations should be made early by writing to The Manager, Jasper Park Lodge, Jasper, Alberta. Be sure to state names and addresses of members of your party, date of arrival, accommodation desired and how long you expect to stay.

Soldiers and the Medical Protective Association

The following letter, sent to medical men in the Canadian Forces has caused transitory hypertension in some cases:

Dear Doctor:

During the 1914—1918 war and thus far during this war this Association has provided membership free for those doctors who were members before their enlistment. Liability to suit while in the Army Medical Corps was thought to be small and it was felt that continued membership in the Association might divert worry in cases where trouble arose as a result of work done before doctors entered the Army Medical Corps.

Recently the Canadian Medical Protective Association had occasion to review its opinion. It was discovered that even when a doctor in the Army Medical Corps is acting in obedience to the order of an officer that doctor is liable personally for any negligence or unskillfulness in the discharge of his professional duty. His defence might be provided by the Crown, but if he were found guilty of negligence or malpractise and if damages were assessed against him payment of those damages might be his own responsibility.

Therefore, it is necessary for the Association to charge the usual membership fee to its members in the Royal Canadian Army Medical Corps beginning January 1st, 1942.

Your attention is drawn to the following fact. Doctors in the United States are being urged to maintain their protection while in the army and both Defence Societies in Great Britain are stressing the fact that practitioners' memberships with them must be continued while the doctors are in the defence forces.

The Association, therefore, cannot urge too strongly that if you enter the Army you make definite provision for the maintenance of your membership, and that if you are already in the Army you renew your membership for 1942.

Yours very truly,
THE CANADIAN MEDICAL
PROTECTIVE ASSOCIATION.

Winnipeg Medical Society

J. C. Hossack — *President*
C. B. Stewart — *Vice-President*

Digby Wheeler — *Past President*
F. G. McGuinness — *Past President*

H. F. Cameron — *Secretary*
David Swartz — *Treasurer*

MEETINGS
Third Friday, each month

Next Meeting
March 20th

MEETINGS
Start exactly at 8:15 p.m.

NOTICE BOARD

Friday the thirteenth was certainly a lucky day for those who attended our special meeting. The two speakers were excellent, the attendance was large and even the quarters were, for them, reasonably comfortable.

Professor Watson discussed jaundice in a most illuminating way. He certainly disabused anyone who thought that nothing could be added to his knowledge of this common symptom. Incidentally he informed us that but by chance he might have been, as his father was, a graduate of Manitoba. Professor Gillespie, himself a Scot, gave his presentation with delightful "pawkiness." He, too, chose an everyday condition and shed upon it a new light. An interesting fact was the importance he placed upon the work done by Alexander Ferguson—one of the founders of our medical school and a great surgeon. To many of the audience the name meant nothing, which goes to prove the truth of the assertion that a prophet is not without honour save in his own country and among his own kindred.

Altogether the evening was interesting and profitable.

The next time you take up your obstetrical forceps say, "thank you" to William Smellie. To be sure, Smellie did not invent that useful tool, which has helped so many to finish the job. But he improved it, and devised the lock which is now used universally on British and American instruments.

William Smellie was born in 1697 (the year of the Peace of Ryswick) and died in 1763 (the year of the Peace of Paris which saw Canada ceded to England). He was a compatriot and teacher of William Hunter with whom he later shared the leadership in obstetrical teaching and practice during his time. He wrote the first text book which gave instructions in the use of forceps. A pair of his instruments is in the College Museum.

He was the subject of a paper delivered by Dr. Ross Mitchell before the Medical History Section on January 30th. The next meeting of this section will be held in the Club Rooms on March 27th at 7:15 (dinner at 6:30). The speaker will be Doctor Speechly and his topic, "Captain Cook and Diet."

At a meeting held on the 16th of February, the Executive disposed of a good deal of your money. Sixty dollars a month was set aside as our share of a fund for the purchase of things wanted and needed by our overseas members. Already three parcels have been despatched and month by month others will be sent.

We spent a further five hundred dollars on the purchase of a Victory Bond. The writer is opposed to the idea of making the Society into a hoarder of funds. We should collect enough to get by, with a little over. We bought no bond last year, but the money is needed by the Government, and I don't think any member will object to our action.

The pile of instruments for British Hospitals keeps growing. Well over six hundred items have been collected. Just how much we have gathered we do not know, because in some instances the Red Cross van called at the doctor's house and no list was available. But Winnipeg has done its share nobly.

Some time ago a member suggested that a meeting under the general title, "Mistakes I Have Made" would be helpful to the younger men. As a matter of fact, the blunders of others usually strike us as inexcusable while our own, of course, could scarcely have been avoided. It is from the latter that we chiefly learn. Nevertheless, something along this line will be our programme on March 20th. Long experience has taught Drs. Hunter, Gibson and MacLean how to skirt the pitfalls, thread the mine fields and avoid the ambushes that trap the inexperienced and unwary.

Dr. Hunter will speak upon "Some Common Errors in Medical Practice," and Dr. MacLean on "Some Errors in Surgery." Dr. Gibson's topic, "Injuries About the Ankle" will without doubt refer to the effects of miscalculation and inappropriate treatment. With this as an opener, anyone who wishes to confess to his errors will no doubt have a sympathetic hearing, which is the least such honesty and bravery deserves.

Personal Notes and Social News

Dr. J. C. Poole of Revelstoke, B.C., son of Dr. J. S. Poole, M.L.A., of Neepawa, Man., has joined the R.C.A.M.C.

◈ ◈

Major J. S. Hillsman, formerly stationed at M.D. 10 has been transferred to number 3 Casualty Clearing Station.

◈ ◈

Dr. F. G. McGuinness has been appointed chairman of the Manitoba Military advisory committee.

◈ ◈

Dr. W. F. O'Neill of Pilot Mound, Man., was recently promoted to captain. At present he is stationed at an Ontario internment camp military hospital.

◈ ◈

Dr. and Mrs. M. R. McCharles have returned to Winnipeg after a holiday trip to Pacific Coast points.

◈ ◈

Dr. and Mrs. W. Malyska of Waskada, Man., were recent visitors to Winnipeg.

◈ ◈

Dr. C. S. Allen of Winnipeg has joined the R.C.A.F.

◈ ◈

Dr. J. G. Fyfe of Manitou, Man., is now attached to the R.C.N.V.R.

◈ ◈

No. 3 Casualty Clearing Station, R.C.A.M.C., has received an order to mobilize for active service. It is stated that Major G. S. Williams, formerly superintendent of the Children's Hospital, Winnipeg, who is now in England, will be the Commanding Officer with the rank of Lieutenant-Colonel. Other officers of the unit will be Major Jack McKenty and Major Cyril Stevens.

◈ ◈

Dr. John Whitbread '34, who is attached to an Indian Medical Service field ambulance in Libya was wounded in the shoulder by shrapnel and captured by the Italians last December. He was well treated as a prisoner. Soon afterwards he was freed by Imperial troops.

◈ ◈

Dr. Norman P. Merkeley is now attached to Number 3 Casualty Clearing Station.

◈ ◈

At the annual meeting of the Sanitorium Board of Manitoba on February 17th, Mr. John McEachern was re-elected Chairman. Dr. E. L. Ross, Medical Superintendent of the Board, reported a record low tuberculosis death rate during 1941. It was approximately 40 per 100,000 population as compared to a rate of 50 per 100,000 in 1940.

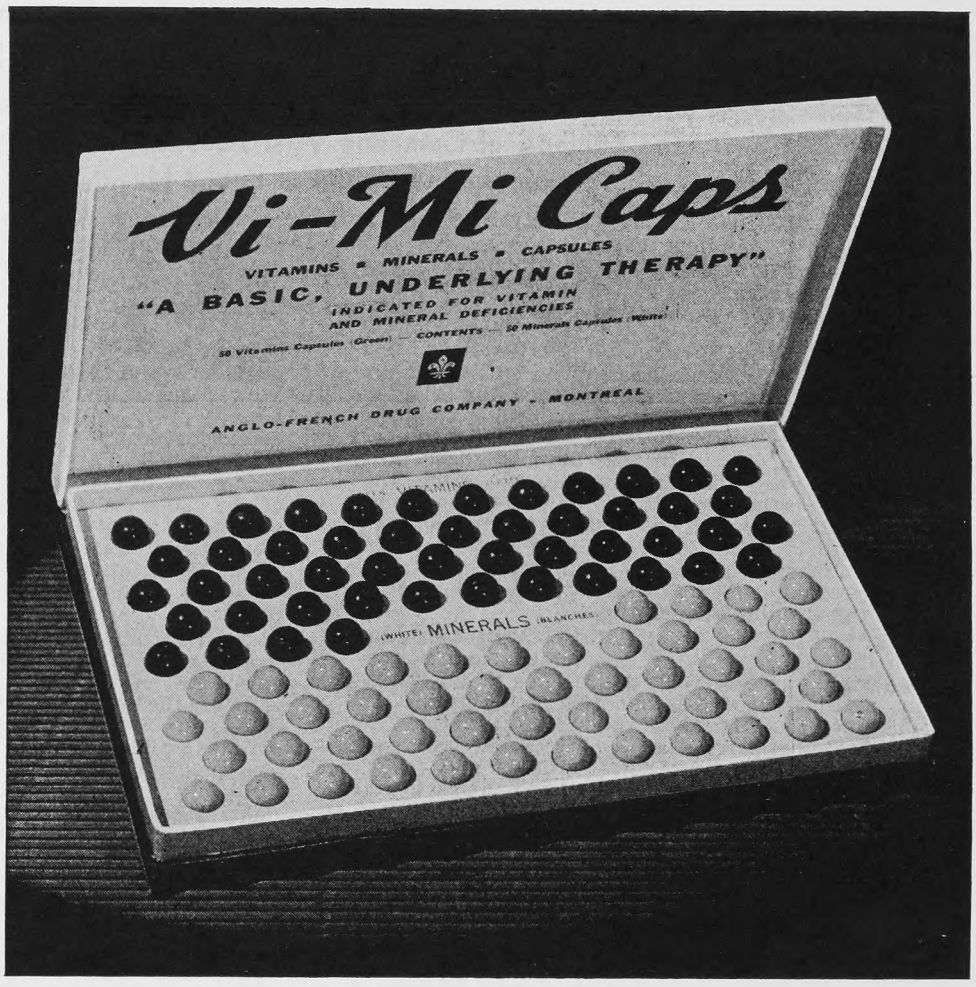
The recent news received from Chunking, China, that Dr. J. N. B. Crawford was a prisoner of war and alive and well, was joyously received by his many friends in the profession.

◈ ◈

Major Cecil H. Taylor is now attached to Number 3 Casualty Clearing Station with headquarters at Minto Barracks.

◈ ◈

Dr. Morris Brook of Kindersley, Sask., on his return home from taking a post graduate course in surgery at Chicago, attended the post graduate course in Therapeutics held by the Faculty of Medicine of the University of Manitoba.



HOW SUPPLIED: In boxes of 100 capsules — 50 Vitamins (green)— 50 Minerals (white)

DOSAGE: 1 Vitamine and 1 Mineral capsule daily is the average dose for Adults and Children. For increased effect 2 of each capsule may be given to Adults.

...Vi-Mi Caps

Integral Vitaminotherapy Associated to Minerals

Samples on request from

ANGLO-FRENCH DRUG CO. — 209 St. Catherine Street East — MONTREAL

For **Arthritis - Chronic Rheumatism**

SULFOSALYL

Containing the three salicylates, sulphur, calcium, thyroid and parathyroid in enteric coated capsules, dissolving in the intestines, thus avoiding gastric irritation.

Samples on request from:

ANGLO-FRENCH DRUG CO. — 209 St. Catherine Street East — MONTREAL

Department of Health and Public Welfare

"The Method of Gathering Vital Statistics and their Value from the Standpoint of Public Health"

We are publishing herewith the eighth of a series of essays prepared by the medical students before taking the final examination in Preventive Medicine at the Faculty of Medicine of the University of Manitoba last year. The one for this month is written by Doctor J. M. Ridge on the subject: "The Method of Gathering Vital Statistics and their Value from the Standpoint of Public Health," and reads as follows:

The space devoted to Vital Statistics in textbooks of preventive medicine is much smaller in proportion than the corresponding section in the Bible. To the reader it is certainly even less compelling intellectually. None the less, vital statistics are of serious import to the physician, if only because he must spend many spare moments providing the raw material whence they are beaten. Furthermore, on his diligence, discrimination, and diagnostic skill the value of the finished product depends. Yet the "duly qualified medical practitioner practicing his profession in the province of Manitoba" is probably as ignorant of such an implication as he is of the meaning of the term.

According to Trask, vital statistics are those "relating to the life histories of communities and nations. They pertain to those events which have to do with the origin, continuation and termination of the lives of the inhabitants." In Manitoba the Vital Statistics Act regulates the registration of births, marriages and deaths. In a broader sense vital statistics may include the incidence of reportable diseases and the facts contained in the Census.

In Canada, as in most other countries, the Census provides the basic study of the population. It is conducted every tenth year by the Dominion. Births, marriages and deaths are recorded under provincial statute. Since 1918, the provision of a "Model Bill" as a basis for local legislation has resulted in a comparable uniformity between provinces. The provincial Acts allot the responsibility for the collection of data, appoint an agency to do so, and provide the mechanism for administering the acquired statistics. The inevitable penalties are also provided. Table 1 shows in brief, the basic structure of the Act, as it operates in Manitoba.

It is impossible to avoid gross errors in collecting even the simplest of vital statistics. They continually elude the lawmaker; their source—human frailty and inertia. The sections of the Census dealing with ages may be cited as an example. Surely everyone can give his age and that of his immediate family with an accuracy bordering on the absolute. Yet children under two are often omitted altogether from the reckoning. More frequently their ages are given as the next birthday instead of at the last, as required. The number of women aged twenty to twenty-five is disproportionately large, because young females of fifteen to twenty like to be considered young ladies, while those of twenty-five to forty would still fain be young girls. Likewise, the aged usually add one to five years to their already impressive total.

Such errors result from mere vanity and inadvertence. Their occurrence is known to be relatively constant and may be compensated for by statistical method. What possibilities exist when a really strong human value conflicts with the law requiring collection of statistics? The stigma attached to illegitimacy or venereal disease remains so dire that large-scale concealment is inescapable. Even the common contagious diseases, innocent of blame, are not reported when the consequent quarantine might interfere with the domestic economy.

A wide variation is thus implied in the collection of the least complicated element of statistics—frequency of occurrence. A still greater error must be involved when the part of the records devoted to causes is examined. Back in 1912, R. C. Cabot made a study of the accuracy of diagnosis before death in a thousand cases coming to autopsy. It varied from 95%-diabetes mellitus, to 16%-acute nephritis. At that time the X-ray was the physicist's plaything, biochemistry a dawning science, endoscopic methods unknown. Yet a study made as late as 1939 on over eight thousand autopsies showed an accuracy of only 79%. Allowing that the autopsy cases contain an unusual proportion of baffling diagnostic problems, there is much food for thought in both studies. They were made in teaching hospitals with excellent opportunity for investigation. How many of the causes of death reported from general practice are true? Is not every sudden death a coronary occlusion, every lingering one a malignancy, every heart disease congestive failure? Probable errors of estimate are readily calculated; not so probable errors of diagnosis.

In spite of the unavoidable inaccuracy of such statistics, their value in the political, economic or social sphere can not logically be contested. A government can estimate the number of citizens old enough to pay taxes, or be shot at. From the birth rate of its divisions, a city may determine when and where schools should be built. The public utilities can figure within narrow limits how many persons are likely to require their services of light or heat or transportation. The individual citizen is called upon to produce his birth certificate frequently, often for such opposite purposes as to join the army or avoid conscription. Similar values in the sphere of public health should be readily adduced to justify statistical studies.

Vital Statistics provide concrete evidence of the value of previous public health programmes. If the death rate from a disease shows a significant decrease following a public health project directed at its roots, the conclusion is obvious. "Eureka, we have done it." Fortunately this assumption is usually justified. The Health Department is thus able to record an achievement and, we hope, secure another hard-won increase in the department budget.

The physician finds in vital statistics a means of refuting many of the extravagant statements of the professional windbag, whose political bumptiousness drives him constantly to point with pride or with alarm, checked only by the dictates of his fancy. Far too many are ready to assert groundlessly that madness will shortly claim us all, or that democracy is sickening rapidly. Others would constantly minimize the ever-present dangers and neglect vaccination or pooh-pooh the incidence of venereal disease. The facts are not so, and the statistician can prove it.

The presentation of correct vital statistics is fundamental in securing for health measures the support of public opinion so necessary to produce action in a democracy. The recent work of the United States' Surgeon General is a case in point. Naturally many of the finer distinctions of statistical method are not applicable. The two hundred or more causes of death in the International List may have to be reduced to "Ten Leading Causes" for publicity purposes. Yet the statistician ensures that the presentation is based on valid figures and if carried out graphically is not warping those figures by a deliberate effort at illusion.

The selection of an appropriate field for concentrated large-scale action is made easier by the study of vital statistics. The use of other statistics than those termed vital, further enhances their value. The economic circumstances surrounding, say, a high infant mortality rate have been found to bring into relief their mutual dependence. "Low income, or dependency; bad housing and general unfavorable living environment; low level of education; grossly inadequate early medical care; high incidence of preventable disease and mortality." On these social and medical wastelands the com-

bined firing power of medical, charitable and legislative enterprise may be brought to bear.

Statistical methods can never indicate a great advance in medical science. They await the discoveries of laboratory, clinic and factory. In focussing for critical appraisal the success or failure of those discoveries, vital statistics provides the yardstick of ultimate morbidity and mortality. Vital statistics then carry on to show where and how those proven of worth may best be applied.

Table I.

A Tabular Summary of the Vital Statistics Act

	Births	Marriages	Deaths
Responsibility	1. Medical Attendant 2. Father or mother or occupier of place of birth.	Person solemnizing.	Undertaker.
Time Allowed	10 days.	15 days.	Before burial.
Agent	Division Registrar, (usually the clerk of the municipality).	Division Registrar.	Division Registrar.
Penalty	Five to fifty dollars.	None.	Refusal to certify, $5 to $50. Falsification $50-$200.
Form	Schedule "A" — Official Notice of Birth.	Schedule "B" — Official Notice of Marriage.	Schedule "C" — Official Registration of Death. Schedule "D"— Burial Permit.
Estimate of Efficiency	Good: Failures due to laziness, distance from registry, more rarely illegitimacy, concealed stillbirth.	Excellent: Motive for concealment very rare; publicity usually desired, etc.	Excellent for the fact of death— burial impossible without certificate. Poor for the cause, diagnostic error.

Note:—The estimate of efficiency given above is, of course, not a part of the Vital Statistics Act.

References:

1. The Vital Statistics Act. (Province of Manitoba.)
2. Trask, J. W.—Vital Statistics (in Rosenau's "Preventive Medicine and Hygiene.")
3. Bigger—Textbook of Hygiene.
4. Swarthout, H. O.—"To What Degree are Mortality Statistics Dependable?"— American Journal Public Health, 30:811 (July 1940).
5. Allen, F. P.—"Utilizing Vital Statistics in the Public Health Programme." American Journal Public Health, 30:627 (June 1940).

COMMUNICABLE DISEASE REPORT

December 31—January 28

Measles: Total 396—Winnipeg 153, Transcona 55, St. Vital 49, Brandon 20, Norfolk North 17, Tuxedo Town 14, Portage la Prairie Rural 9, Rockwood 7, Miniota 4, Pipestone 4, St. James 4, Argyle 3, Flin Flon 3, Portage la Prairie City 3, Wallace 3, Blanshard 2, Hamiota Village 2, Stanley 2, Assiniboia 1, Cypress South 1, Edward 1, Fort Garry 1, Hamiota Rural 1, Langford 1, Minnedosa Town 1, Neepawa Town 1, Rosser 1, Springfield 1, Strathclair 1, St. Boniface City 1, Virden Town 1, Woodlands 1. (Late Reported: Unorganized 27, Norfolk North 1.)

Chickenpox: Total 383—Winnipeg 169, Brandon City 55, St. Boniface City 44, St. Vital 23, Fort Garry 18, Daly 6, Gilbert Plains Village 6, Wallace 6, Unorganized 6, Brooklands Village 5, St. James 5, Flin Flon 3, Kildonan East 3, Kildonan West 3, Lac du Bonnet 3, Norfolk North 3, Woodworth 2, Grandview Town 1, Lansdowne 1, Manitou Village 1, Minnedosa 1, Minto 1, Oakland 1, Tuxedo 1, Wawanesa Village 1. (Late Reported: Brandon 13, Flin Flon 1, St. Boniface 1.)

Mumps: Total 357—Winnipeg 110, Tuxedo Town 79, Brandon City 39, Kildonan West 25, Fort Garry 22, Selkirk Town 13, Brooklands Village 10, Hamiota Village 10, Minnedosa Town 10, Wallace 9, Sifton 6, The Pas Town 5, Woodlands 4, Portage la Prairie Rural 3, Hillsburg 1, Kildonan East 1, Norfolk North 1, Oak Lake Town 1, Pembina 1, Portage la Prairie City 1, St. Boniface City 1, St. James 1, Transcona 1, Virden 1, Woodsworth 1. (Late Reported: Brooklands 1.)

Scarlet Fever: Total 106—Brandon 45, Winnipeg 19, Fort Garry 6, Harrison 5, Flin Flon 3, Miniota 2, St. Boniface City 2, St. Vital 2, Tuxedo 2, Oakland 1, Portage la Prairie City 1, Roblin Rural 1, St. James 1. (Late Reported: Flin Flon 4, Brandon 3, St. Clements 2, Harrison 2, Rockwood 1, Portage la Prairie City 1, St. Boniface 1, St. James 1, Unorganized 1).

Influenza: Total 51—Brandon 46, Winnipeg 3, Whitewater 2.

Tuberculosis: Total 43—Winnipeg 6, Brandon 2, Fort Garry 2, Portage la Prairie City 2, Unorganized 2, DeSalaberry 1, Edward 1, Lorne 1, Riverside 1, Selkirk Town 1, Swan River Rural 1, St. Clements 1, The Pas 1, Tuxedo 1, Westbourne 1. (Late Reported: Unorganized 4, Flin Flon 2, Lorne 2, Victoria 2, Brandon 1, Cypress North 1, DeSalaberry 1, Elton 1, Hillsburg 1, Lac du Bonnet 1, Pipestone 1, St. Andrews 1, The Pas 1).

German Measles: Total 43—Brandon 27, Tuxedo 6, Pipestone 3, Portage la Prairie City 2, Roland 2, Norfolk North 1, St. James 1, Whitehead 1.

Whooping Cough: Total 12—Brandon 5, Transcona 3. (Late Reported: Flin Flon 4).

Diphtheria: Total 9—Winnipeg 9.

Septic Sore Throat: Total 6—Whitewater 5. (Late Reported: St. Andrews 1).

Lobar Pneumonia: Total 5—Brandon 2, Lawrence 1, Winchester 1, Unorganized 1.

Anterior Poliomyelitis: Total 4—(Late Reported: Cartier 1, Franklin 1, St. Vital 1, St. Boniface 1.

Meningococcal Meningitis: Total 3—Tuxedo 2, Brandon 1.

Erysipelas: Total 3—Winnipeg 2, Portage la Prairie City 1.

Typhoid Fever: Total 3—Winnipeg 2. (Late Reported: St. Anne 1.)

Encephalitis: Total 2—(Late Reported: Neepawa 1, Minitonas 1.

Undulant Fever: Total 1—Winnipeg 1.

Diphtheria Carriers: Total 1—Winnipeg 1.

Venereal Disease: Total 164—Gonorrhoea 107, Syphilis 57.

DEATHS FROM COMMUNICABLE DISEASE

December, 1941

RURAL—Cancer 33, Tuberculosis 11, Pneumonia Lobar 8, Pneumonia (other forms) 8, Influenza 2, Cerebro-

spinal Meningitis 2, Measles 2, Lethargic Encephalitis 1, Syphilis 1. Other deaths under 1 year 22; other deaths over one year, 165; Stillbirths 18. Total 274.

URBAN—Cancer 37, pneumonia Lobar 3, Pneumonia (other forms) 11, Tuberculosis 9, Syphilis 4, Lethargic Encephalitis 3, Influenza 2, Cerebro-spinal Meningitis 1, Diphtheria 1. Other deaths under one year 14; other deaths over one year 177; stillbirths 10. Total 272.

INDIANS—Tuberculosis 16, Dysentery 2, Pneumonia 1, Puerperal Septicaemia 1. Other deaths under one year 4; other deaths over one year 13; stillbirths 1. Total 38.

DISEASES	Manitoba Dec. 31-Jan. 28	Ontario Dec. 28-Jan. 24	Saskatchewan Dec. 28-Jan. 24	Minnesota Dec. 28-Jan. 24	North Dakota Dec. 28-Jan. 24
Amebic Dysentery				1	
Anterior Poliomyelitis				1	
Meningococcal Meningitis	3	34	2	1	3
Chickenpox	368	1838	171	579	
Diphtheria	9	13	2	10	16
Erysipelas	3	9	3	5	
Influenza	51	7		5	518
Leth. Encephalitis			1	1	
Measles	368	482	160	862	201
German Measles	43	105	43		
Mumps	356	1219	503		
Gonorrhoea	84	407	†	†	43
Syphilis	43	489	†	†	26
Puerperal Fever			1		
Scarlet Fever	90	789	112	299	76
Septic Sore Throat	5	31			
Smallpox				5	1
Tuberculosis	24	79	1	41	20
Typhoid Fever	2	3		2	1
Typh. Para-Typhoid		4			
Undulant Fever	1	5			
Whooping Cough	8	270	16	138	54
Diphtheria Carriers	1				

† Saskatchewan and Minnesota do not report Venereal Diseases.

With the beginning of 1942 we are including the figures for syphilis and gonorrhoea in the four weekly reports.

As regards Manitoba, there is little of special note in the above statistics. Mumps are fairly prevalent and are the usual nuisance amongst the Armed Forces.

Influenza shows 51 cases reported—many of these from the Armed Forces as their cases are hospitalized. As there is some possibility of this disease becoming epidemic, we ask for better reporting, especially of typical cases.

Minnesota and North Dakota both report smallpox. We have been free of this disease for two years. Let us keep it free by having everyone vaccinated and re-vaccinated!

The Health League of Canada is urging a special "Toxoid Week" for the whole of Canada, April 19th to 26th. It is a good idea and we heartily endorse it. When we look above and note those 9 cases of diphtheria (all preventable) we know we are not doing enough toxoiding. How about making plans for clinics this spring?